

S/205/61/001/004/032/032
D298/D303

Chronicle. Presowing...

filial AN SSSR (Urals Branch, AS USSR), the Institute of Biophysics, AS USSR, in conjunction with the Vsesoyuznyy nauchno-issledovatel'skiy institut vitaminnoy promyshlennosti (All-Union Scientific Research Institute of the Vitamin Industry) studied the irradiation of various varieties of radish seeds. In all cases an increase of 11 - 26% in the root yield and a 5 - 6 day acceleration in root ripening were noted. The optimum radiation doses were 500 and 1,000 r. Presowing irradiation of tomatoes carried out by the Urals Branch, AS USSR, the L'vov University and the Institute of Biophysics, AS USSR, accelerated ripening of the fruits and increased the yield by 27 - 45%. Irradiation of sprouting seeds gave an increase in the fruit yield of up to 66%. This method should be subjected to all-round research since in almost all cases it gave higher indices than with irradiation of dry seeds. The presowing irradiation of carrots by the Institute of Biophysics, AS USSR, in conjunction with the All-Union Scientific Research Institute of the Vitamin Industry and L'vov University showed that this crop had a high resistance to radiation and that irradiation gave an increase in the root yield of

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Chronicle. Presowing...

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conference was attended by 96 specialists from 38 scientific research institutions and training institutes. The papers summarized research on the presowing irradiation of the seeds of various agricultural crops. In all cases a rise in yield, acceleration of maturation, and an increase in seed germination were noted. Generalization of the research data on maize obtained over a period of years in the Ukrainskiy institut fiziologii rasteniy (Ukrainian Institute of Plant Physiology), the Sibirskiy botanicheskiy sad Zapadnosibirskogo filiala AN SSSR (Siberian Botanical Gardens of the West Siberian Branch, AS USSR), the Institut biologii AN Latviyskoy SSR (Institute of Biology, AS Latviyskaya SSR), the L'vovskiy universitet (L'vov University), the Institut genetiki i selektsii AN Azerbaydzhanskoy SSR (Institute of Genetics and Selection, AS Azerbaydzhanskaya SSR) and the Institute of Biophysics, AS USSR, showed that gamma-irradiation of dry maize seeds in doses of 500 p to 4 kr stimulates its growth and development, gives an increase in grain yield of 10 - 18% and of green mass from 5 - 28%. An account of various individual studies of this problem is given. The Institute of Biology of the AS Latviyskaya SSR, the L'vov University, the Ural'skiy

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AUTHORS: Kuzin, A. M., and Berezina, N. M.

TITLE: Chronicle. Presowing gamma-irradiation of the seeds
of agriculture crops

PERIODICAL: Radiobiologiya, v. 1, no. 4, 1961, 636-638

TEXT: The article presents the results of the Soveshchaniye po
predposevnomu oblucheniyu semyan sel'skokhozyaystvennykh kul'tur
(Conference on the Presowing Irradiation of the Seeds of Agricultural
Crops), convened by the Institut biologicheskoy fiziki AN SSSR (Institute
of Biophysics, AS USSR) in conjunction with the Sovet po ispol'zovaniyu
atomnoy energii v sel'skom khozyaystve VASKhNIL (Council on the Use of
Atomic Energy in Agriculture, VASKhNIL) on February 20-23, 1961, in
Moscow. The conference was convened by the Laboratoriya radiobiologii
(Laboratory of Radiation Biology) of the Institute of Biophysics, AS
USSR, to summarize research on the effects of the presowing of seeds on
the growth, development and biochemical composition of plants. The

Card 1/5

BEREZINA, N.M.; SHCHIBRYA, G.I.; ROMANCHIKOVA, M.L.

Results of irradiating seeds of Rubin radishes under conditions of hotbed culture. Radiobiologiya 1 no.3:461-462 '61. (MIRA 14:10)

1. Institut biologicheskoy fiziki AN SSSR, Moskva
(PLANTS, EFFECT OF GAMMA RAYS ON) (SEEDS)

BEREZINA, N.M.; YAZYKOVA, V.A. [deceased]

Significance of the disturbance of metabolic reactions in radiation injury of seeds; Radiobiologiya 1 no.1:135-138 '61. (MIRA 14:7)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.
(PLANTS, EFFECT OF X RAYS ON) (SEEDS)

SHCHIBRYA, G.I.; BEREZINA, N.M.; PERETOKIN, I.V.; YAZYKOVA, V.A. [deceased]

Increasing the yield and vitamin content of strawberries following cultivation of planting material in a gamma field. Trudy VNIVI 8:86-89 '61. (MIRA 14:9)

1. Sel'skokhozyaystvennyy otdel Vsesoyuznogo nauchno-issledovatel'skogo vitaminnogo instituta.
(Strawberries) (Plants, Effect of radioactivity on)

BEREZINA, N.M.

Use of ionizing radiations in raising the yield of agricultural
crops. Atom.energ. 9 no.5:432-433 N '60. (MIRA 13:11)
(Plants, Effect of radiation on)

KUZIN, A.M.; BEREZINA, N.M.; SHLYKOVA, O.N.

Role of the dose rate in radiobiological effects on plants.
Biofizika 5 no. 5:566-569 '60. (MIRA 13:10)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.
(PLANTS, EFFECT OF GAMMA RAYS ON) (RADIATION--DOSAGE)

BRESLAVETS, L.P.; BERNZIN, N.M.; SHCHIBRYA, G.I.; ROMANCHIKOVA, M.L.;
YAZYKOVA, V.A.; MILESHKO, Z.F.

Increasing the yield of radishes and carrots by irradiating seeds
with gamma and X rays before sowing. Biofizika 5 no.1:81 '60.

(MIRA 13:6)

(RADISH) (CARROTS) (PLANTS, EFFECT OF RADIATION ON)

Role of Peroxides and Oxygen (Cont.)

SOV/5628

7

Kolomiitseva, I. K., and A. M. Kuzin [Institute of Biophysics, AS USSR]. Lipid Peroxides in a Normal and in an Irradiated Animal Organism

26

Kuzin, A. M., L. M. Bronskaya, N. M. Berezina, and V. A. Yazykova [Institute of Biophysics, AS USSR]. Formation of Peroxides in Gamma-Irradiated Plant Seeds

33

Zhulanova, Z. I., I. A. Korovina, and Ye. P. Romantsev. Formation of Organic Peroxides in an Organism During Irradiation on an X-Ray Apparatus With a Dose Rate of 130 r/sec

43

Zhuravlev, A. I. Role of Antioxidants in Primary Radiobiological Effects

55

Mikhlin, D. M. (Deceased) [Institut biokhimii im. A. N. Bakha AN SSSR - Institute of Biochemistry imeni A. N. Bakh, AS USSR]. Effect of Ionizing Radiation of Oxidation-Reduction Reactions in a Cell

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Role of Peroxides and Oxygen (Cont.)

SOV/5628

physical chemists took an active part in the symposium. Between the time of its conclusion and the publication of the present book some of the materials were expanded. In addition to the authors the following scientists participated in the discussion: L. A. Tumnerman, V. S. Tongur, G. M. Frank, Yu. A. Kriger, E. Ya. Grayevskiy, N. N. Demin, B. N. Tarusov, and I. V. Vereshchenskiy. References follow individual articles.

TABLE OF CONTENTS:

Kuzin, A. M. [Institut biologicheskoy fiziki AN SSSR - Institute of Biophysics, AS USSR]. Role of Formation of Peroxides During the Action of Radiation on Biological Specimens	3
Bakh, N. A. [Institut elektrokhimii AN SSSR - Institute of Electrochemistry, AS USSR]. Formation of Organic Peroxides Under the Action of Radiation	9
Dolin, P. I. [Institute of Electrochemistry, AS USSR]. Lifetime of Intermediate States Arising During the Action of Radiation on Aqueous Solutions	20

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BEREZINA, N M

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PHASE I BOOK EXPLOITATION SOV/5628

Akademiya nauk SSSR. Institut biologicheskoy fiziki

Rol' perekisey i kisloroda v nachal'nykh stadiyakh radiobiologicheskogo effekta (Role of Peroxides and Oxygen During Primary Stages of Radiobiological Effects) Moscow, 1960. 157 p. 4,500 copies printed.

Responsible Ed.: A. M. Kuzin, Professor; Ed. of Publishing House: K. S. Trinchin; Tech. Ed.: P. S. Kashina.

PURPOSE : This collection of articles is intended for scientists in radiobiology and biophysics.

COVERAGE: Reports in the collection deal with the role of peroxides and oxygen in the primary stages of a radiobiological effect. They were presented and discussed at a symposium held December 25-30, 1958, organized by the Institut biofiziki AN SSSR, (Institute of Biophysics, AS USSR). Twenty-eight Moscow scientists, radiobiologists, radiochemists, physicists, and

Card-1/5-

BRESLAVETS, L.P.; BREZINA, N.M.; SHCHIBRYA, G.I.; ROMANCHIKOV, M.L.

**Effect of ionizing radiations on the growth and development of
certain agricultural plants. Biofizika 1 no.7:628-632 '56.**

(MLRA 9:12)

- 1. Institut biologicheskoy fiziki Akademii nauk SSSR, Moskva.
(PLANTS, EFFECT OF RADIATION ON)**

BRESLAVETS, L.P.; HERNIZINA, N.M.; SHCHIBRYA, G.I.

Effect on certain agricultural plants of prolonged irradiation with small doses of gamma rays. Biofizika 1 no.6:555-563 '56. (MLRA 10:1)

1. Institut biologicheskoy fiziki Akademii nauk SSSR, Moskva.
(GAMMA RAYS--PHYSIOLOGICAL EFFECT)
(PLANTS, EFFECT OF RADIATION ON)

ALEKSANDROVA, V.P.; ~~BEREZINA~~, N.K.; BERNSHTEYN, A.I.; BERNSHTEYN, S.E.;
BLOKH, R.L.; ZINKOVETSKAYA, T.S.; IDESIS, Ye.S.; SMOLENKOVA, O.N.;
TOSHINSKIY, I.I.; TSARFIS, P.G.; SHABAD, Ye.T.; SHEYNBERG, O.A.

Professor E.IA. Stavskaya; obituary. Vop. kur., fizioter. i lech.
fiz. kul't. 26 no. 2:191 Mr-Ap '61. (MIRA 14:4)
(STAVSKAYA, EVGENIYA IAKOVLEVNA, 1892-1960)

BEREZINA, N.I.; AKHMETOV, N.S., otv. red.

[Laboratory work in inorganic chemistry] laboratornyi
praktikum po kursu neorganicheskoi khimii. Kazan', Ka-
zanskii khimiko-tekhnologicheskii in-t. No.1. 1963. 29 p.
(MIRA 17:10)

On the Structure of an Electropolished Surface

SOV/137-59-5-11545

diminished during the first 15 - 20 seconds and increased rapidly thereafter. The authors suppose that data obtained on the distribution of the dew and of the galvanic depositions assert the theory that electropolishing is a process of electric decrystallization. There are 7 bibliographical titles. ✓

N.K.

Card 2/2

SOV/137-59-5-11545

Translation from: Referativnyy zhurnal, Metallurgiya, 1959, Nr 5, p 295
(USSR)

AUTHORS: Berezina, N.I., Vozdvizhenskiy, G.S.

TITLE: On the Structure of an Electropolished Surface²⁶

PERIODICAL: Tr. Kazansk. khim.-tekhnol. in-ta, 1958, Nr 22, pp 60 - 70

ABSTRACT: To investigate the structure of an electropolished ²¹Cu surface, the authors used the "dew" method and applied extremely thin Cu depositions from acid electrolytes. When using the "dew" method, the specimens were cooled down to ~ 0°C after electropolishing¹⁸ and drying. Then they were subjected to a slight steam blast. The distribution of the dew was observed under a microscope. Changes in luster during the electropolishing process were also observed. During the electropolishing process, specimens, preliminarily subjected to rolling, became rapidly brighter within the first 1.5 - 2 minutes. The luster of annealed specimens

Card 1/2

BEREZINA, N.I., Cand Chem Sci--(diss) "On the structure and properties of the electropolished surface of metal." Kazan', 1958. 11 pp (Min of Higher Education USSR. Kazan' Chem-Technol Inst im S.M. Kirov), 150 copies (KL,30-58,124)

BEREZINA, N. I.

USSR/ Engineering - Gear transmissions

Card 1/1 Pub. 128 - 6/25

Authors : Berezina, N. I.

Title : A simplified geometric calculation of spur gear transmission

Periodical : Vest. mash. 1, 36-42, Jan 1955

Abstract : A series of scientific papers dealing in the calculation of gear transmission systems, spur gears and graphs for calculation gear pitch, is presented. Four USSR references (1949-1954). Tables; graphs.

Institution :

Submitted :

AL'SHITS, I.Ya., kandidat tekhnicheskikh nauk (and others)..... Card 2.

cheskikh nauk, MEDINOV, V.Ya., kandidat tekhnicheskikh nauk;
ERLIKH, L.B., kandidat tekhnicheskikh nauk; ACHNEKAN, N.S.,
doktor tekhnicheskikh nauk, professor, redaktor; MARKUS, M.Ye.,
inzhener, redaktor; KARGANOV, V.G., inzhener, redaktor; SOKOLOVA,
T.F., tekhnicheskii redaktor.

[Mechanical engineer's manual; in 6 volumes] Spravochnik mashino-
stroitel'ia; v shesti tomakh. Izd. 2-e, ispr. 1 dop. Moskva, Gos.
nauchno-tekhn. izd-vo mashinostroit. lit-ry, Vol. 4, 1955. 851 p.
(Mechanical engineering) (MIRA 8:12)

Berezina, N.I.

AL'SHITS, I.Ya., kandidat tekhnicheskikh nauk; BABKIN, S.I., kandidat tekhnicheskikh nauk; BALAKSHIN, B.S., doktor tekhnicheskikh nauk, professor; BEYSEL'MAN, R.D., inzhener; BRILYAYEV, V.H., kandidat tekhnicheskikh nauk; BEREZINA, N.I., inzhener; BIRGER, I.A., doktor tekhnicheskikh nauk; BOGUSLAVSKIY, Yu.M., kandidat tekhnicheskikh nauk; BOROVICH, L.S., kandidat tekhnicheskikh nauk; GONIKBERG, Yu.M., inzhener; GORDON, V.O., professor; GORODETSKIY, I. Ye., doktor tekhnicheskikh nauk, professor; GROMAN, M.B., inzhener; DIKER, Ya.I., kandidat tekhnicheskikh nauk; DOSCHATOV, V.V., inzhener; IVANOV, A.G., kandidat tekhnicheskikh nauk; KINASOSHVILI, R.S., doktor tekhnicheskikh nauk, professor; KRUTIKOV, I.P., kandidat tekhnicheskikh nauk; LEVENSON, Ye.M., inzhener; MAZYRIN, I.V. inzhener; MARTYNOV, A.D., kandidat tekhnicheskikh nauk; NIBERG, N.Ya., kandidat tekhnicheskikh nauk; NIKOLAYEV, G.A., doktor tekhnicheskikh nauk, professor; PETRUSEVICH, A.I., doktor tekhnicheskikh nauk; POZDNYAKOV, S.M., dotsent; PONOMAREV, S.D., doktor tekhnicheskikh nauk, professor; PRONIN, B.A. kandidat tekhnicheskikh nauk; RESHETOV, D.N., doktor tekhnicheskikh nauk, professor; SATEL', E.A., doktor tekhnicheskikh nauk, professor; SIMAKOV, F.F., kandidat tekhnicheskikh nauk; SLOBODKIN, M.S., inzhener; SPIRYSIN, N.A., doktor tekhnicheskikh nauk, professor; STOLBIN, G.B., kandidat tekhnicheskikh nauk; TAYTS, B.A., doktor tekhnicheskikh nauk; CHERNYSHEV, H.A., kandidat tekhnicheskikh nauk; SHNEYDEROVICH, R.M., kandidat tekhnicheskikh nauk;

(Continued on next card)

BEREZINA, N.I.; ROYTER, I.M.; BASHIROVA, R.S.

Fermenting of dough prepared with liquid yeast and table salt.
Trudy KTIPP no.17:75-80 '57. (MIRA 13:1)
(Yeast) (Baking)

BEREZINA, N.F. (Kirov); POPOVA, Z.V. (Kirov); SOLODENNIKOV, A.I. (Kirov)

Practical studies of students in a plant chemical laboratory.
Khim.v shkole 11 no.5:62-63 S-O '56. (MLRA 9:11)
(Chemistry--Study and teaching)

TYUREMNOV, S.N.; BEREZINA, N.A.

Destruction of the pollen of woody plants under different
supplies of water and minerals. Vest. Mosk.un. Ser. 6: Biol.,
pochv. 20 no.5:62-71 S-O '65. (MIRA 18:11)

1. Kafedra geobotaniki Moskovskogo universiteta. Submitted
March 24, 1965.

~~BEREZINA N. A.~~

Use of insecticides in controlling predatory insect pests of fish.
Vop.ikht.no.7:209-220 '56. (MLRA 10:3)

1. Kafedra gidrobiologii Moskovskogo tekhnicheskogo instituta rybnoy
promyshlennosti i khozyaystva im. A.I. Mikoyana.
(Fishes--Diseases and pests) (Insecticides)

BEREZINA, Natal'ya Alekseyevna

[Hydrobiology] Gidrobiologiya. Izd.2. Moskva, Gos.
izd-vo "Vysshaya shkola," 1963. 438 p. (MIRA 17:9)

BEREZINA, N. A.

Gidrobiologiya (Hydrobiology) Moskva, Sovetskaya Nauka, 1953.
358 p. Illus., Maps, Tables.

SO: N/5
631.43
.B4

BEREZINA, N. A.

N. A. Berezina, G. G. Abrikosov, Z. S. Bronstein, N. S. Gayevskaya,
V. I. Zatzepin, N. N. Kondakov, K. I. Meyer, V. I. Olifan, P. I.
Usatchev, Z. A. Filatova, A. A. Shoragin, T. F. Chitchapova,
Z. G. Shchedrin, V. A. Jashnov co-authors of the book "Definitions -
Fauna and Flora of Northern Seas in USSR" edited by Prof. N. S. Gayevski,
and approved by the Ministry of USSR Higher Education as a manual
for universities. State Publishing "SOVIET SCIENCE", Moscow - 1948.

SO: 654015

BEREZINA, M.V.; SYRTOVA, K.F.

Substitutes for magnesium sulfate in duodenal sounding. Lab. delo 8
no.3:25-26 Mr '62. (MIRA 15:5)
(DUODENUM—INTUBATION) (SUCROSE)

BEREZINA, Mariya Pavlovna; VASILEVSKAYA, Natal'ya Yefimovna; AVERBAKH, Mikhail Solomonovich; VETUKOV, Ivan Alekseyevich, dots.; GOLIKOV, Nikolay Vasil'yevich; GUIYAYEV, Pavel Ivanovich; ZHUKOV, Yevgraf Konstantinovich; LATMANIZOVA, Lyudmila Vladimirovna; MAKAROV, Petr Osipovich; NIKITINA, Iya Pavlovna; SPERANSKAYA, Yekaterina Nikolayevna; VASIL'YEV, L.L., prof., red.; PEREDEL'SKAYA, N.M., red.; PARSADANOVA, K.G., red. 1zd-va; GRIGOR-CHUK, L.A., tekhn. red.

[Comprehensive laboratory manual of human and animal physiology] Bol'shoi praktikum po fiziologii cheloveka i zhivotnykh. Izd.2., ispr. 1 dop. Moskva, Gos. izd-vo "Vysshaya shkola," 1961. 674 p. (MIRA 14:8)
(PHYSIOLOGY—LABORATORY MANUALS)

BULATOV, Panteleymon Konstantinovich, red.; BEREZINA, M.P., red.; YAKIMOVA, P.A., red.

[Fomes igniarius f. sterilis Van and its therapeutic in fourth-stage cancer] (Zhaga 1 ee lecheniye primeneniye pri ruke IV stadii. Leningrad, Medgiz, 1959. 333 p. (MIRA 13:2)
(CANCER) (FUNGI--THERAPEUTIC USE)

USSR/Human and Animal Physiology (Normal and Pathological)
Neuro-Muscular Physiology.

T

Abs Jour : Ref Zhur Biol., No 6, 1959, 26931

(initial increase of it, with subsequent decrease) was also noted. Excitability and conductivity of asphyxiated nerve which disappeared completely were restored in inclusion of a direct current anode in the conditions of continuing asphyxia.

Card 2/2

USSR/Human and Animal Physiology (Normal and Pathological)
Neuro-Muscular Physiology.

T

Abs Jour : Ref Zhur Biol., No 6, 1959, 26931
 Author : Berezina, M.P., Guseva, Ye.A.
 Inst : Leningrad University
 Title : The Removal of Asphyxial Nerve Parabiosis by Means of the
 Action of Direct Current Anode
 Orig Pub : Vestn. Leningr. un-ta, 1958, No 15, 133-139
 Abstract : The nerve asphyxia was performed according to the method
 described in earlier work of the authors (Tr. Leningr.
 o-va yestestvoisp., 1935, 64, vyp. 3, 283). In the beg-
 inning of nerve asphyxiation, the phase of shortening of
 chronaxia was noted; later, the phase of its lengthen-
 ing. In the process of development of asphyxial parabio-
 sis in the altered part, a bi-phase change of lability

Card 1/2

BEREZINA, M.P.; VASIL'NEVA, V.K.

Conditioned reflex variation of skin reactions in patients with
bronchial asthma [with summary in English]. Vest.LGU 13 no.21:
125-133 '58. (MIRA 11:12)
(ASTHMA) (SKIN) (CONDITIONED RESPONSE)

BEREZINA, M.P.; GUSEVA, Ye.A.

Disinhibiting asphyxial parabiosis of the nerve by the anodic action
of direct current [with summary in English]. Vest. LGU 13 no.15:133-139
'58. (MIRA 11:9)

(ELECTROPHYSIOLOGY) (NERVES)

BEREZINA, M.P.

YAKIMOV, P.A., doktor khimicheskikh nauk; BULATOV, P.K., doktor meditsinskikh nauk; ~~BEREZINA~~, H.P., doktor biologicheskikh nauk.

The preparation "BIN-chaga," made from white rot fungus. Vest.AN SSSR
27 no.4:88-91 Apr '57. (MLRA 10:5)
(MEDICAL MYCOLOGY)

BEREZINA, M. P.

23671

O FUNKSIONAL'NOM SOSTOYANII RANEVOY ZONY DOL'NIKH POLUSHARIY GOLOVNOGO MOZGA PRI
OGNESTREL'NYKH RANENIYAKH. TRUDY SARAT. GOS. MED. IN-~~TA~~, T. VIII, 1949, S. 349-64.

SO: LETOPTS NO. 31, 1949

BEREZINA, M.P.; RIKHTER, I.D.; UGRYUMOV, V.M.

Functional state of the lesion zone in craniocerebral trauma.
Uch. zap. Len. un. no.99:182-210 '49. (MLRA 10:2)

1. Fiziologicheskii institut imeni akademii A.A. Ukhtomskogo
pri Leningradskoi gosudarstvennoi universitete.
(BRAIN--WOUNDS AND INJURIES)

BEREZINA, M. P.

Berezina, M. P. and Ugryumov, V. M. - "On the adaptation of electro-anesthetization during operative interferences on peripheral nerves," Insymposium: VIII Sessiya Neyrokhirurg. soveta i Leningr. in-ta neyrokhirurgii (Akad. med. nauk SSSR), Moscow, 1948, p. 247-48

SO: U-3600, 10 July 53, (Letopis 'Zhurnal 'nykh Statey, No. 6, 1949)

ANTONOV, Ivan Aleksandrovich; BEREZINA, Mariya Nikitichna;
SIROTYUK, A.K., retsenzent; KULIKOVA, T.I., retsenzent;
SHUMAGINA, V.I., red.

[Technology of the manufacture of men's coats] Tekhnologiia
izgotovleniia muzhskikh pal'to. Moskva, Legkaia industriia,
1965. 203 p. (MIRA 18:9)

BEREZINA, M. M.: Master Med Sci (diss) -- "On the morphology of the nerves of the eye muscles of man and certain animals". Voronezh, 1959. 20 pp (Voronezh State Med Inst) (KL, No 13, 1959, 111)

BEREZINA, M.D.

Determining the manganese and potassium contents in formation
waters using spectrum analysis. Trudy Giprovostoknefti no.3:
85-89 '61. (MIRA 16:7)

(Manganese—Spectra)
(Oil field brines)
(Potassium—Spectra)

BEREZINA, M.D.

Results of the determination of the manganese and potassium contents
in formation waters by spectrum analysis. Trudy Giproostoknefti
no.3:85-89 '61 (MIRA 14:12)
(Manganese--Spectra) (Potassium--Spectra)

RYBAKOV, F.F.; BEREZINA, M.D.

Microelements in the ash of paleozoic petroleum of the eastern
part of the Russian Platform. Geol.sbor. no.3:266-269 '55.
(Russian Platform--Petroleum geology) (MLRA 8:6)

BEREZINA M.D.

Subject : USSR/Mining
 Card : 1/1
 Authors : Rybakov, F. F. and Berezina, M. D.
 Title : The use of spectral analysis of rocks for correlation of geological cuts
 Periodical : Neft. Khoz., v. 32, #5, 55-58, My 1954
 Abstracts : The authors outline a general method of semi-qualitative spectral analysis of various rock core samples containing traces of oil or organic substances. The geochemical characteristics of rocks on horizontals are given in relation to adopted strati-graphical scheme for the Permian period. The authors present the analysis of many regions and recommend a method for the plotting structural maps and correlation of geological sections. One graph.
 Institution : None
 Submitted : No date

AID P - 330

BEREZINA, L.Ya. (Riga)

Theory of a two-dimensional surface in E_4 . Izv. vys. ucheb. zav.,
mat. no.4:12-18 '64. (MIRA 17:9)

BEREZINA, L.Ya. (Riga)

Moving n -hydrop of an m -dimensional surface in an n -dimensional space
of constant curvature. Izv. vys. ucheb. zav.; mat. no.5:8-11 '64.
(MIRA 17:12)

BEREZINA, L. /s/

Congruences, described with axes of triorthogonal trihedron. Vestis
Latv ak no.10:71-76 '59. (EEAI 9:10)
(Congruences (Geometry)) (Configurations)

16(1) SOV/155-58-3-5/37
 AUTHOR: Berezina, L. Ya.
 TITLE: Two-Sided Fiberable Pairs of Congruences in the Lobachevskiy Space (Dvustoronnye rassloyayemyye pary kongruentsiy v prostranstve Lobachevskogo)
 PERIODICAL: Nauchnyye doklady vysshey shkoly. Fiziko-matematicheskiye nauki, 1958, Nr 3, pp 23-25 (USSR)
 ABSTRACT: According to the method of Finikov [Ref 1] the author establishes the system of equations which determines a two-sided fiberable pair of congruences in a Lobachevskiy space related to homogeneous normalized coordinates. One of the equations combines the excentricity and the asymmetry [Ref 1] of the congruence of common perpendiculars, the other equations combine focal distances, angles between the focal planes, distance between center and foot of the common perpendiculars etc. There are 3 Soviet references.
 ASSOCIATION: Rzhzhskiy pedagogicheskiy institut (Riga Pedagogical Institute)
 SUBMITTED: March 1, 1958

Card 1/1

BEREZINA, L. Ya. Cand Math-Phys Sci -- (diss) "A Study of
~~Bihedrally~~ ^{bilaterally} Stratifying Pairs of Congruences by Means of
Auxiliary Trihedrons." Tartu, 1957. 7 pp 21 cm. (Tartu State
Univ), 125 copies (KL, 17-57, 94)

BEREZINA, L. YA.

USSR/Mathematics - Differential Geometry Jul/Aug 53

"Certain Theorems on the Two-sided Stratifiable
Couples with Real Focal Surfaces," L. Ya. Berezina,
Riga

Mat Sbor, Vol 33 (75), No 1, pp 101-110

States that the general eqs of a two-sided stratification of congruence couples have 6 forms. Notes that in 1943 S. P. Finikov expressed the coeffs of the expansion of two of these forms in independent form by means of quantities that characterize the congruence of the general perpendiculars, and thus

271T83

obtained from one of the eqs of the stratification system the theorem of general character. Here the authoress expresses the coeffs of expansion of the remaining 4 forms in independent form by means of quantities characterizing both congruences that form the couple. Thus obtains a number of new theorems. Presented 1 Aug 52.

271T83

BEREZINA, L. YA.

USSR/Mathematics - Differential Geometry Jul/Aug 53

"Stratifiable Couples Joined to the Parabolic Congruence of Total Perpendiculars," S. P. Finikov, Moscow

Mat Sbor, Vol 33 (75), No 1, pp 3-12

States that in the metric theory of stratifiable couples it is essential to refer the pair of corresponding rays to a rectangular trihedron formed from the total perpendicular (normal) of the rays of the pair and from the two vectors perpendicular to it. Here the theory of stratifiable couples is

271577

connected with the peculiarities of the congruence of total perpendiculars. Ordinarily this congruence is assumed to be hyperbolic; hence the interest in parabolic congruence. Cites related work of L. Ya. Berezina (Iz Akad Nauk Latv SSR, Vol 8 (1951), pp 1317-1325). Presented 10 Oct 52.

271577

BEREZINA, L. YA.

Mathematical Reviews
Vol. 15 No. 3
March 1954
Geometry

6-24-54
LL

Berezina, L. Ya. Some properties of evolute surfaces.
Uspehi Matem. Nauk (N.S.) 8, no. 3(55), 109-110 (1953).
(Russian)

Let R_1, R_2 be the radii of principal curvature of a surface (Σ) , R_1', R_2' those of its evolute surfaces (Σ_i) , $i=1, 2$, and β_i the angle between the normal to (Σ) and the lines of curvature of (Σ_i) ; then

$$\sin 2\beta_1 \sin 2\beta_2 = \frac{4(R_1 - R_2)^2}{(R_1' - R_2')^2 (R_1^2 - R_2^2)},$$

$$(R_1' - R_1') \sin 2\beta_1 = 2(R_1 - R_2) \frac{\tan \psi_1}{\tan \psi_2},$$

$$(R_2' - R_2') \sin 2\beta_2 = 2(R_1 - R_2) \frac{\tan \psi_2}{\tan \psi_1}.$$

Here $\tan \psi_i = R_i / \rho_{i2}$ (ρ_{12}, ρ_{22} = radii of geodesic curvature of the lines of curvature on Σ). The β_i satisfy the equation

$$R_1' \sin^2 \beta_1 + R_2' \cos^2 \beta_2 = k_n' / K_1,$$

where k_n' is the curvature of the normal section to (Σ_i) in the direction of the normal to Σ ; K_1 is the Gaussian curvature of (Σ_1) .

D. J. Struik (Cambridge, Mass.).

BEREZINA, L.YA.

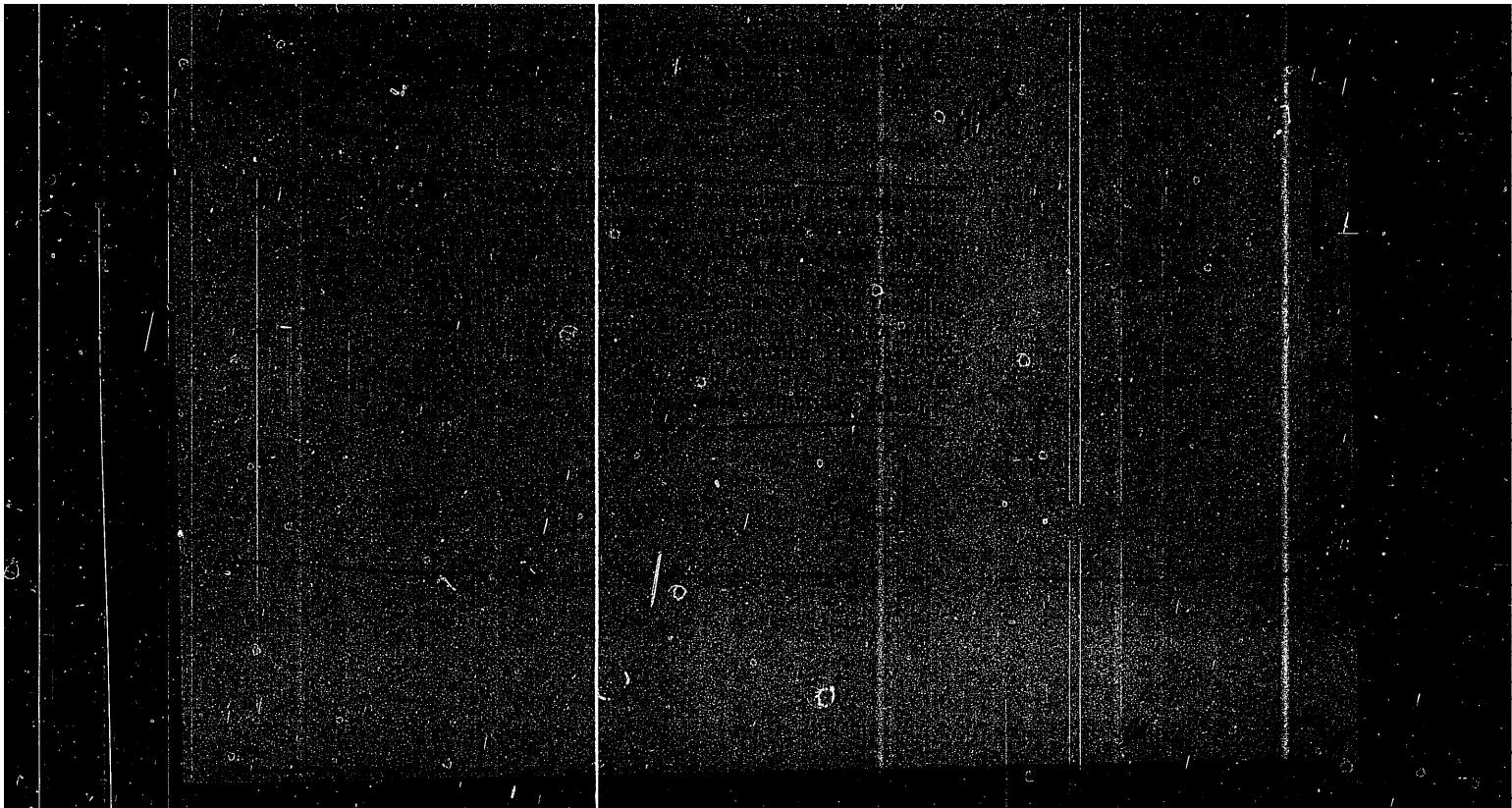
"Refraction of Congruence with Real Focal Surfaces Through an Optical System,"

Usp. Mat. Nauk, vol. 8, no. 1 (53), 111-113, Jan/Feb 1953

Demonstrates four theorems that generalize the Malus theorem concerning relations among anormality of incident congruence, angle of incidence, anormality of refracted congruence, angle of refraction, distances from foci of incident congruence to point of refraction, etc. Cites her two earlier related works (Iz. Akad. Nauk Latv SSR, vol 8 (49) (1951) and vol 2 (56) (1952)). Cites S.P. Finikov's "Theory of Congruence" (Teoriya Kongruentsii) MML, State Tech Press, 1950. Submitted 17 Jul 1952.

250T63

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000204800009-6



APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000204800009-6

BEREZINA, L. YA.

PA 234T77

USSR/Mathematics - Congruence Pairs

1 Sep 52

"Several Relations Concerning Two-Sided Separable
Pairs of Congruences," L. Ya. Berezina

"Dok Ak Nauk SSSR" Vol 86, No 1, pp 5, 6

Shows 4 independent algebraic relations which hold
for general 2-sided separable (laminated) pair.
These relations, with the theorem of S. P. Finikov
("Matemat Sbor" Vol 12 (54), No 3, 1943), are suffi-
cient for detg a 2-sided separable pair. Submitted
by acad S. L. Sobolev 4 Jul 52.

234T77

BEREZINA, L. Ya.

Mathematical Reviews
Vol. 15 No. 4
Apr. 1954
Mathematical Physics

2 Berezina, L. Ya. Investigation of the passage of a general congruence of rays through an optical system by means of the method of the moving trihedron. Latvijas PSR Zinātņu Akad. Vēstis 1952, no. 3 (56), 115-126 (1952). (Russian. Latvian summary)

This paper is written for physicists with an ordinary college training in mathematics and interested in geometrical optics. It gives a simple exposition of the elementary theory of rectilinear congruences in the ω -notation; stress is laid on the transformation of one trihedron into another. Consideration of a congruence in a medium of refraction index n_1 into a medium of refraction index n_2 leads to the theorem of Malus and to formulas such as

$$\frac{n_2 \cos^2 i'}{r_a} - \frac{n_1 \cos^2 i}{r_a} = \frac{n_2 \cos i' - n_1 \cos i}{R},$$

$$\frac{n_2}{r_b} - \frac{n_1}{r_b} = \frac{n_2 \cos i' - n_1 \cos i}{R}.$$

Here i, i' are the angles which the incoming and the refracted rays r, r' make with the normal to the separation surface (ξ); R is the radius of curvature of that normal section of (ξ) in the osculating plane of which lie r, r' ; R , the radius of curvature of that normal section of (ξ) orthogonal to the first; r_a, r_a are the radii of curvature of the normal sections which the plane through r and r' carves into the incoming and refracted wave surfaces; r_b, r_b the radii of curvature of the normal sections orthogonal to these. The paper finishes with some remarks on homocentric pencils and on multiple refractions.

D. J. Struik.

BEREZINA, L. YA.

Congruences (Geometry)

Mean of the envelope congruence of normals. Usp.mat.nauk, 7, No. 3, 1952.

9. Monthly List of Russian Accessions, Library of Congress, November 195²₃, Uncl.

BEREZINA, L. YA.

Congruences (Geometry)

Pair of superimposed surfaces with uniform distances between corresponding points.
Usp.mat.nauk, 7, No. 3, 1952.

9. Monthly List of Russian Acquisitions, Library of Congress, November 195²₈, Uncl.

BEREZINA, L.S.; BOLDIN, R.V.; FEDOSEYEVA, N.N., red.

[Survey of new patents on electric storage batteries]
Obzor novykh patentov na elektricheskie akkumulyatory.
Moskva, TSentr. in-t nauchno-tekhn. informatsii priboro-
stroeniia, elektrotekhn. promyshl. i sredstv avtoma-
tizatsii, 1963. 43 p. (MIRA 17:7)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po
avtomatizatsii i mashinostroyeniyu.

BEREZINA, L.S.

Measuring the absorption of solar radiation in the neighborhood of
Odessa, Trudy Ukr. NIGMI no.8:128-135 '57. (MIRA 11:6)
(Odessa Province--Solar radiation--Measurements)

BEREZINA, L.S.

~~Albedo~~ of certain agricultural crops. Trudy Ukr. NIGMI no.8:93-100
'57. (MIRA 11:6)

(Albedo)

Berezina, L.S.

Radiation balance in Odessa. Trudy Ukr.NIGMI no.4:66-71 '55.

(Odessa--Solar radiation)

(MLRA 10:1)

HERZINA, L.S.; PILIPENKO, K.I.

Direct solar radiation in Odessa. Trudy Ukr.NIGMI no.4:62-65 '55.
(MIRA 10:1)
(Odessa--Solar radiation)

BEREZINA, L.N.

Waxwing in captivity. Priroda 50 no. 2:119 F '61. (MIRA 14:2)

1. Moskovskiy gosudarstvennyy pedagogicheskiy institut im.
V.I. Lenina.

(Waxwings)

ILLEGIBLE

ILLEGIBLE

GINZBURG, A.I.; BEREZINA, L.A.; SHARMIN, N.F.

Surface studies of aerial anomalies characteristic of some
types of rare metal deposits. Geol. ~~met.~~ red. elem. no. 20;
84-115 '63. (MIRA 17:5)

met.

BEREZINA, L.

Curvatures of a four-dimensional trajectory. Vestis Latv. ak. no.12:
25-26 '61.

BEREZINA, L.

Angle between asymptotic lines in spaces of constant curvature.
Vestis Latv ak no.9:67-70 '61.

BEREZINA, L.

Pair of superimposed surfaces with constant distance between
corresponding points and the trihedron of S.D. Rossinskii. Vestis
Latv ak no.2:99-101 '61. (EEAI 10:9)

(Surfaces)

BEREZINA, L.

Some properties of the congruence Q . Vestis Latv ak no.6:57-60 '60.
(EEAI 10:9)

(Congruences and residues)

MILYAVSKAYA, Z., kand.tekhn.nauk; BEREZINA, L.; TANKUS, O.

Let's preserve patterned handweaving. Prom. koop. 14 no.5:24-25 My
'60. (MIRA 13:12)

1. Starshiy khudozhnik tekstil'noy laboratorii Nauchno-issledovatel'skogo instituta khudozhestvennoy promyshlennosti (for Berezina).
2. Zaveduyushchaya laboratoriyey Nauchno-issledovatel'skogo instituta khudozhestvennoy promyshlennosti (for Tankus)
(Hand weaving)

SHCHIBRYA, G.I.; YAZYKOVA, V.A.; BRESLAVETS, L.P.; BEREZINA, I.M.

Action of ionizing radiation on some vitamin-bearing plants.
Trudy VNIVI 6:184-189 '59. (MIRA 13:7)

1. Tsentral'naya biologicheskaya stantsiya Vsesoyuznogo nauchno-
issledovatel'skogo vitaminnogo instituta.
(PLANTS, EFFECT OF RADIOACTIVITY ON)

SOV/169-59-5-5031

Some Results of Determination of the Turbulence Coefficient by the Ion-Impact Method (Linear Source)

series), in July 1954 (18 series), and in June 1955 (28 series). The values of K, obtained by different methods, were intercompared and the coefficient of correlation between them was determined. It turned out that the values of K determined by all three methods, in the main are concordant with each other. The empirical dependence of K on the index of stability of the air layer near the earth has been determined.

M.Ye. Berlyand

IX

Card 2/2

3.5000

SOV/169-59-5-5031

Translation from: Referativnyy zhurnal, Geofizika, 1959, Nr 5, p 102 (USSR)

AUTHORS: Berezina, I.I., Krasnov, B.I.

TITLE: Some Results of Determination of the Turbulence Coefficient by the Ion-Impact Method (Linear Source)

PERIODICAL: Uch. zap. Kirovskiy gos. ped. in-t, 1958, Nr 15, pp 12 - 21

ABSTRACT: Utilizing two portable X-ray-diagnostic devices arranged under natural conditions with a distance of 25 m, a linear ion source was established oriented perpendicularly to the direction of wind. At definite distances from the source, the concentration of ions was measured. From the obtained values of concentration the coefficient of the turbulent exchange K was determined using the formula of V.B. Milin (RZhGfiz, 1956, Nr 12, 36049). At the same time, gradient-observations of temperature and velocity of wind in the layer of atmosphere near the earth were carried out for determining the values K by the methods of M.I. Budyko and D.L. Laykhtman. The work was performed in course of three years: in June 1953 (45 series of measurements), in January 1954 (4

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83485

S/124/60/000/007/006/008
A005/A001

The Determination of the Turbulence Coefficient by the Method of Artificially Starting Ions (Point Source)

number because their results are contradictory to the conclusions obtained from the rest of 38 observations. The main conclusions are as follows:

- 1) The coincidence of the values of k with k_1 and k_2 is satisfactory, which makes it possible to consider the method of artificially started ions as sufficiently reliable for determining the turbulence coefficient. Hereat, k better coincides with k_1 than with k_2 .
 - 2) The ratio k/u is very closely connected with ϵ . The correlation coefficient is equal to -1.00 .
 - 3) The coefficient β well correlates with u as well as with k_1 , whereat the corresponding dependences markedly differ from the linearity.
- A great number of correlation tables and graphs are presented as well as regression equations. Some inaccuracies are found in the article. There are 10 references.

L. S. Gandin

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

3.5000

83485
S/124/60/000/007/006/008
A005/A001

Translation from: Referativnyy zhurnal, Mekhanika, 1960, No. 7, p. 97, # 9012

AUTHOR: Berezina, I. I.

TITLE: The Determination of the Turbulence Coefficient by the Method of Artificially Starting Ions (Point Source)

PERIODICAL: Uch. zap. Kirovskiy gos. ped. in-t, 1958, No. 15, pp. 3-11

TEXT: The results of measurements are analyzed for determining the turbulence coefficient in the atmospheric layer k near the ground surface and the constant of ion vanishing β by artificially starting ions from a point source. Simultaneously, observations of the gradients of wind and temperature were performed. From these observations were determined: a) the stability parameter $\Delta t/u^2$ (Δt is the difference in the temperature at two defined levels, u is the velocity of wind at the defined level), b) the Laykhtman parameter ξ , c) the values of the turbulence coefficient k_1 according to the Laykhtman scheme, and k_2 , according to the Budyko scheme. Altogether 43 observations were evaluated; 5 observations were excluded later from this numb

Card 1/2

BEREZINA, I. I.

"Determination of the Coefficient of Turbulence by the Method of Artificial Ion Emission." Cand Phys-Math Sci, Leningrad Hydrometeorological Inst, Kirov, 1954. (RZhFiz, Nov 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (11)

SO: Sum. No.521, 2 Jun 55

ILLEGIBLE

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BEREZINA, K.G.; KUTANINA, L.K.; KATSION, V.V.

Polarographic determination of chloro derivatives of methane. Zav.
lab. 29 no.12:1434-1436 '63. (MIRA 17:1)

ROMAZANOVICH, N.P.; BEREZINA, K.S.

Polarographic analysis of some analogs of DDT. Zav. lab. 27
no. 12:1453 '61. (MIRA 15:1)
(Ethane) (Polarography)

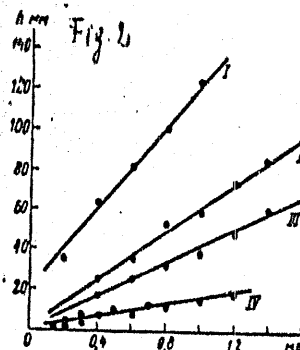
Polarographic determination ...

S/032/61/027/003/009/025
B101/B203

after filling up to 50 ml by addition of water. There are 3 figures, 2 tables, and 4 references; 3 Soviet-bloc and 1 non-Soviet-bloc.

Legend to Fig. 2: Calibration curves.

I) Chloral hydrate; II) first wave of dichloro acetaldehyde; III) second wave of dichloro acetaldehyde; IV) elevation of the first wave of dichloro acetaldehyde by the presence of chloral hydrate



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Polarographic determination ...

S/032/61/027/003/009/025
B101/B203

chloral hydrate by means of a ЦЛАН-312 (TsLA PE-312) electronic polarograph was developed. KCl was used as a background. Oxygen was removed by addition of Na_2SO_3 . Under such conditions, chloral hydrate gives a distinctly marked wave ($E_{1/2} = -1.6 \text{ v}$). Dichloro acetaldehyde gives two waves

($E_{1/2} = -1.1$ and -1.6 v). In mixtures of the two substances the -1.6 v waves are superimposed, and the -1.1 v of dichloro acetaldehyde appears distinctly only at a low content (5-10%) of chloral hydrate. With more than 50% chloral hydrate, its influence on the first wave of dichloro acetaldehyde must be taken into account. Fig. 2 shows the calibration curves. If the content of dichloro acetaldehyde is lower than 50%, the polarogram should be plotted with addition of a known amount of dichloro acetaldehyde. Errors of up to 13-14% may arise in this connection. As direct polarography of chlorine oil is not possible due to disturbing impurities, it is distilled off, and polarography is performed with the fractions 85-90°C and 90-95°C; the result is converted for the weighed portion of chlorine oil. The basis is 100 g of chlorine oil. The two fractions are weighed, and filled up to 100 ml with distilled water. 0.5-1.0 ml of the solution is mixed with 1 ml of saturated Na_2SO_3 solution and 25 ml of 0.2 N KCl. Polarography is performed

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S/032/61/027/003/009/025
B101/B203

AUTHORS: Romazanovich, N. P. and Berezina, K. G.

TITLE: Polarographic determination of dichloro acetaldehyde in
chlorination products of ethanol

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 3, 1961, 287-290

TEXT: Chloral, a chlorination product of ethanol, is used as initial material for the synthesis of chloroform (which is used for the production of fluoroplasts) and, together with dichloro acetaldehyde, for the synthesis of DDT and similar substances. The industrial chlorination product of ethanol, the so-called "chlorine oil", contains, besides chloral, other products of partial chlorination and oxidation of alcohol: dichloro acetaldehyde, its hydrates and alcoholates, acetals, dichloro acetic acid, its esters, etc. The determination of the content of dichloro acetaldehyde is important for the control of the chlorination process. It is, however, not possible by chemical methods in the presence of chloral. Proceeding from a paper by Ph. Elving, E. Baunet (Ref. 3: Anal. Chem., 26, 10, 1572 (1954)), the polarographic determination of dichloro acetaldehyde in a mixture with

Card 1/3

BEREZINA, I.

Women In Forestry

A transformer of nature, Rad. zhiv. 7 No. 8, 1952

Monthly List of Russian Accessions, Library of Congress, June 1953, Uncl.

SAL'NIKOVA, V.S.; POLEVUKHINA, L.P.; BEREZINA, G.V.

Studying the binding properties of basic open-hearth slags.
Nauch.dokl.vys.shkoly; stroi. no.2:187-192 '59.
(MIRA 13:4)

1. Rekomendovana kafedroy stroitel'nykh materialov Leningrad-
skogo inzhenerno-stroitel'nogo instituta.
(Slag)

L 06313-67

ACC NR: AT6020431

tions. The agreement is shown to be good. Under the conditions of the experiment some 18% of the beam energy was lost to the plasma through the excited oscillations in the plasma as well as through the heating of the plasma. At most, 60% of the lost energy was found in the plasma oscillations. Orig. art. has: 10 figures, 4 formulas.

SUB CODE: 20/ SUBM DATE: 11Nov65/ ORIG REF: 009/ OTH REF: 001

Card 2/2 *gd*

L 06313-67 MWI(1) IJP(c) AT/GD

ACC NR: AT6020431

(N)

SOURCE CODE: UR/0000/65/000/000/0007/0023

AUTHOR: Berezin, A. K.; Faynberg, Ya. B.; Bolotin, I. I.; Berezina, G. P.

ORG: none

TITLE: High frequency oscillations excited during electron beam interaction with plasma

SOURCE: AN UkrSSR. Vzaimodeystviye puchkov zaryazhennykh chastits s plazmoy (Interaction of charged particle beams with plasma). Kiev, Naukova dumka, 1965, 7-23

TOPIC TAGS: HF oscillator, plasma heating, electron beam, cyclotron frequency

ABSTRACT: The generation of oscillations in a plasma and the electron beam traversing the plasma and the study of the resulting waves are described. The experiments were conducted with the plasma frequency smaller than that of the electron cyclotron frequency. A beam current of 8.5 and 5 A and a magnetic field in the range of 720-1320 oe (parallel to current) were used. The frequencies generated in the experiment were determined by magnetic probes and wavemeters. All three spatial components were determined. The frequency spectrum of 400 to 3200 cps was measured. These measurements show that the intensity of the generated waves in the beam depend on the ambient pressure. At higher pressure values, a characteristic plateau was found. The wave intensity was also found to increase in the beam direction, and to decrease as the magnetic field decreased. These results are discussed and compared with the theoretical predic-

Card 1/2

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L 4242-66

ACCESSION NR: AT5007973

ASSOCIATION: Fiziko-tehnicheskii institut AN UkrSSR (Physicotechnical Institute,
AN UkrSSR) 44, 55

SUBMITTED: 26May64

ENCL: 00

SUB CODE: NP

NO REF SOV: 005

OTHER: 001

BVK
Card 5/5

1 4242-66

ACCESSION NR: AT5007973

I. Shevchenko at this institute for the case of beams of not very large density, a nonlinear theory has been created which permits one to trace the process of interaction of an initially nonmodulated beam and mono-energetic beam with a plasma from the initial stage to saturation. As is shown, a large part of the beam's energy of ordered motion (75% of its initial energy) is lost by the beam as a result of collective interactions with the plasma. Thus the energy expended upon excitation of oscillations amounts to 30%; upon increasing the thermal energy of the plasma, to 30%; and upon increasing the thermal energy of beam, to 15%. The experimental investigations of this interaction were carried out by I. F. Kharchenko and A. K. Berezin and their respective co-workers. Their results are in agreement with the theory of M. F. Gorbatenko. The mentioned institute has also carried out further theoretical and experimental investigations on the problems of electromagnetic wave propagation in plasma waveguides excited by high-frequency wall sources. The experimental studies, by O. G. Zagorodnov, et al., showed that the results agree well with theory under conditions of insignificant nonlinear effects. Current experiments are concerned with highly-ionized plasmas with density 10^{11} to 10^{12} . Orig. art. has: 4 figures, 1 table.

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L 4242-66

ACCESSION NR: AT5007973

crease in the high-frequency energy losses. It is also important to concentrate the electromagnetic energy in the radial direction only in the regions where the accelerated particles are moving. Thus for a given field strength the electromagnetic energy flux decreases markedly. If the fluxes of accelerated particles are large, the waveguide properties necessary for acceleration can be ensured by the particles of the beam which are not entrapped in the acceleration process, through which particles the entrapped particles move. The beam itself which is injected into the accelerator operates under these conditions of an accelerating system. To clarify the possibilities of particle acceleration by means of electromagnetic waves excited by charged particle beams, and also to investigate the influence of beam instabilities upon the acceleration process, the Physicotechnical Institute, Academy of Sciences Ukrainian SSR conducted theoretical and experimental investigations on the interaction of charged particle beams with a plasma. These investigations were intended to lead to, not the design and construction of a definite accelerator model, but the physical processes occurring during the interaction under consideration, and in this way to a determination of the possibilities of plasma methods of acceleration which are being developed at this institute. The theory developed up to the present time of the interaction between beams and plasma has been essentially a linear theory. As a result of the work of V. D. Shapiro and V.

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L 4242-66

ACCESSION NR: AT5007973

paratively small plasma densities around 10^9 to 10^{13} cm^{-3}). Under these conditions the high-frequency energy losses during wave propagation, which are due to the collisions of plasma particles, are small. The density of electrons in metals (about 10^{23}) is many orders greater than is necessary for ensuring waveguide properties in the microwave range. This leads to great losses of high-frequency power during wave propagation in metallic conductors. For plasma densities around 10^9 to 10^{13} cm^{-3} , the energy losses during particle transit through the plasma, which are proportional to plasma density, are insignificant, from 10^{-5} to 10^{-6} ev/cm . This means that plasma waveguides are "transparent" for accelerated particles. According to the conditions of acceleration the particles are divided into individual bunches. Thus the loss of particles moving in the plasma can increase greatly because of the occurrence of coherent deceleration representing the inverse of the effect of coherent acceleration, which was established by V. I. Veksler (Symposium CERN 1, 80 (1956)). However, even for accelerated particle fluxes of the order of tens of amperes, these losses are all insignificant. Because waveguide properties are determined by the plasma, the metal surfaces can be remote from regions with large field strengths or eliminated altogether, which permits a significant increase in the permissible voltages of the accelerating fields and a substantial de-

Card 2/5

L 4242-66 EWT(1)/EWT(m)/ETC/EPF(n)-2/ETG(m)/EPA(w)-2/EWA(m)-2 LIB(c)
 ACCESSION NR: AT5007973 GS/AT/JIT S/0000/64/000/000/1023/1029/06
 AUTHOR: Berezin, A. K.; Berezina, G. P.; Bolotin, L. I.; Gorbatenko, M. F.;
 Yegorov, A. M.; Zagorodnov, O. G.; Kornilov, B. A.; Kurilko, V. I.; Lutsenko, Ye.
 I.; Laypkalo, Yu. M.; Pedenko, N. S.; Kharchenko, I. F.; Shapiro, V. D.;
 Shevchenko, V. I.; Faynberg, Ya. B.
 TITLE: Acceleration of charged particles with the aid of longitudinal waves in
 plasma and plasma waveguides
 SOURCE: International Conference on High Energy Accelerators. Dubna, 1963.
 Trudy. Moscow, Atomizdat, 1964, 1023-1029
 TOPIC TAGS: high energy accelerator, electron beam, plasma accelerator, plasma
 waveguide
 ABSTRACT: Plasma waveguides and noncompensated electron and ion beams can be uti-
 lized as accelerating systems in linear accelerators (Faynberg, Ya. B., Symposium
 CERN 1, 84 1956); *Atomnaya energiya* 6, 431 (1959)). In such systems, slow elec-
 tromagnetic waves $v \ll c$ are propagated, which are necessary for particle accelera-
 tion. The waveguide properties of restrained plasma and noncompensated beams are
 displayed in the case of waves in the meter and centimeter range even for com-
 Card 1/5

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